

REMARKS

This paper is filed in response to the Office Action mailed 9/26/08. Claims 1-6, 10-14, 16-18, and 20-24 were pending in the application, of the above claims 13, 14, 16-18 and 20 were withdrawn from consideration. Claims 1, 3 and 6 have been amended. Therefore, claims 1-6, 10-14, 16-18, and 20-24 are now pending in the application, of which claims 13, 14, 16-18 and 20 are withdrawn from consideration, claims 1-6, 10-12 and 21-24 are submitted for reconsideration.

Request for Telephone Interview

Should issue of a final rejection be considered, the Examiner is respectfully requested to contact the undersigned by email to owend@howrey.com in order to schedule a telephone interview.

Rejection of Claims 1-6, 10-14, 16-18 and 20-24

Claims 3 and 6 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite and failing to particularly point out the Applicant's invention.

In response to this rejection, claim 3 has been amended to remove the wording:

“, preferably around 70 microns”

and claim 6 has been amended to specify that:

“the water retaining layer is provided on only one surface of each of the fins.”

Claims 1-6, 10, 11, 21, 23 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable in view of Yasutake et al. (US4,729,428) in combination with Lamich (US6,640,886).

In response to these rejections, claim 1 has been amended to require that the corrugated fins are provided on both internal and external surfaces of the flow channel. Applicant respectfully submits the following.

In line with the reasoning of the office communication, claim 1 as amended is considered new in relation to Yasutake by virtue of at least the limitation to the provision of corrugated fins on both first and second surfaces of the formable laminate. Yasutake only describes the presence of corrugated fins 13 on one side of each plate member 2. The fins 11 on the second side of the plate member 2 are provided as a complicated structure of a flat plate 10 with integrally formed fins 11 standing out therefrom, and integrally formed stiff

sidewalls 9. It is these integrally formed fins 11 on which, in figure 17, a porous layer is provided. Thus, claim 1 also differs from Yasutake in that Yasutake does not disclose the provision of a water-retaining layer on corrugated fins.

The present invention advantageously provides an easily and cheaply formed heat exchange element suitable for use in evaporative cooling. Advantageously the present inventors have provided a device that makes use of the same type of fin on both surfaces of the heat exchange wall. By reducing the variation in the components, manufacturing costs are reduced. Also, by provision of the water-retaining layer on corrugated fins, the water-retaining layer can advantageously be added to e.g. an aluminium plate, prior to formation into its corrugations. This allows for a better and more even distribution of the water-retaining layer than is obtainable when brazing aluminium particles onto the complicated wall structure of the fins 11 of Yasutake.

In the reasoning of the office action it is suggested that it would have been obvious to replace the spacer 8 of figure 17 of Yasutake with the serpentine fins of Lamich. However, it is not apparent how the skilled reader would achieve this substitution. It appears from Yasutake that the particular structure of spacer 8 is essential to the construction of that device. It is conjectured that the essentiality lies in the apparently stiff nature of the structure providing adequate support to withstand the forces of manufacturing of the device. It is noted that despite Yasutake already describing corrugated fins, none of the embodiments even hint at the use of such corrugated fins on both sides of a heat exchange wall. It would thus appear that in Yasutake the use of corrugated fins on both sides of the heat exchange wall was inappropriate, perhaps because of difficulties in relying on stiffness of the spacer during manufacturing. Nothing in Lamich offers a solution to this apparent reliance on the particular spacer shape shown in Yasutake, since Lamich also does not describe how a single laminate can be provided with corrugated fins connected to both its first and second surfaces under heat and pressure. Thus the combination of Yasutake and Lamich cannot lead the skilled reader to the advantageous invention of claim 1.

The present application discloses to the art how to achieve the advantageous invention of claim 1, as illustrated for example in the drawings 10 to 11, and the text associated therewith, thus making such previously unattainable devices available.

It is respectfully submitted that nothing in the art of record teaches or suggests the present invention.

Claims 2-6, 10-12 and 24 depend from claim 1 and are thus patentable on that basis.

Claim 21 is novel and inventive over the art of record for the same reasons as given above in relation to claim 1.

Claims 22, and 23 depend from claim 21 and are thus patentable on that basis.

In view of the above, Applicant respectfully requests entry and allowance of claims 1-6, 10-14, 16-18, and 20-24 by the Examiner.

Extension of Time

Any extension of time that may be deemed necessary to further the prosecution of this application is hereby requested.

Authorization to Charge Fees

The Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 08-3038, referencing the docket number shown above.

Authorization to Communicate via email

Pursuant to MPEP 502.03, authorization is hereby given to the USPTO to communicate with Applicant's representative concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file. Applicant's representative, David P. Owen, can be reached at email address owend@howrey.com.

The Examiner may also contact the undersigned by telephone at the number given below in order to resolve any questions (note, this telephone number is an Amsterdam phone number, Amsterdam time is 6 hours ahead of US east coast time).

Respectfully submitted,

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